

WHAT IS CLAIMED IS:

1. A bridge damage detection system comprising:
a first conductor and a second conductor suitable for carrying electric current, the first and second conductors suitable for running along a first section of a bridge;
a junction box affixed to the first section of the bridge, the junction box coupling a first end of the first conductor and a first end of the second conductor; and
a control panel coupled to a distal end of the first conductor and a distal end of the second conductor, the control panel being operable to provide an electric current on the first conductor and to monitor the second conductor for an expected return electric current, the control panel being operable to transmit a signal to activate a notification device upon failing to detect the return electric current on the second conductor.
2. The system of Claim 1 further comprising a conduit that houses the first and second conductors, the conduit suitable for being run along the first section of the bridge, the conduit being a solid conduit when run along a physical portion of the first section of the bridge, the conduit being a flexible conduit when run along a portion of the first section of the bridge where expansion or contraction is expected to occur.
3. The system of Claim 1, wherein the junction box comprises a resistor, the resistor coupling the first end of the first conductor and the first end of the second conductor.
4. The system of Claim 1, wherein the first conductor and the second conductor are each an 18 gauge copper wire.
5. The system of Claim 1, wherein the notification device is a signboard being operable to display a message alerting of damage to the bridge.
6. The system of Claim 1, wherein the notification device is an audible alarm device.
7. The system of Claim 6, wherein the audible alarm device being operable to emit an audible tone alerting of damage to the bridge.

8. The system of Claim 6, wherein the audible alarm device being operable to emit a message alerting of damage to the bridge.
9. The system of Claim 1, wherein the notification device is a warning light.
10. The system of Claim 1, wherein the warning device is a drop bar.
11. The system of Claim 1, wherein the signal comprises a sequence of signals being understood to be a notification of damage to the bridge.
12. The system of Claim 1 further comprising a communication module coupled to the control panel, wherein the control panel is further operable to activate the communication module to notify a central operator of damage to the bridge upon failing to detect the return electric current on the second conductor, the communication module being operable to transmit a notification of damage to the bridge.
13. The system of Claim 12, wherein the notification of damage comprises a wired communication.
14. The system of Claim 12, wherein the notification of damage comprises a cellular communication.
15. The system of Claim 12, wherein the notification of damage comprises a satellite communication.
16. The system of Claim 12, wherein the notification of damage comprises a radio communication.
17. The system of Claim 12, wherein the central operator is at a location remote from the bridge.
18. The system of Claim 12, wherein the notification comprises a display of a warning message on a communication device accessible by the central operator.
19. The system of Claim 12, wherein the notification comprises an audible warning suitable for emission on a communication device accessible by the central operator.
20. The system of Claim 12, wherein the notification comprises an activation of at least one light on a communication device accessible by the central operator.
21. The system of Claim 1, further comprising:

a third conductor and a fourth conductor suitable for carrying electric current, the third and fourth conductors suitable for running along a second section of the bridge;

a second junction box affixed to the second section of the bridge, the second junction box coupling a first end of the third conductor and a first end of the fourth conductor; and

wherein, the control panel is coupled to a distal end of the third conductor and a distal end of the fourth conductor, the control panel being operable to provide an electric current on the third conductor and to monitor the fourth conductor for an expected return electric current, the control panel being operable to transmit the signal to activate the notification device upon failing to detect the return electric current on the fourth conductor.

22. The system of Claim 1, wherein the first section of the bridge comprises at least a portion of a deck of the bridge.

23. The system of Claim 1, wherein the first section of the bridge comprises at least a portion of a guard rail of the bridge.

24. The system of Claim 1, wherein the first section of the bridge comprises at least a portion of an abutment of the bridge.

25. The system of Claim 1, wherein the first section of the bridge comprises at least a portion of a column of the bridge.

26. A method for monitoring a spanning structure for damage comprising:
running a first conductor along a first section of a spanning structure, the first conductor suitable for carrying electric current;

running a second conductor along the first section of the spanning structure, the second conductor suitable for carrying electric current;

coupling a first end of the first conductor and a first end of the second conductor;

supplying an electric current to a distal end of the first conductor;
monitoring the distal end of the second conductor for an expected return electric current; and

responsive to failing to detect the expected return electric current at the distal end of the second conductor, activating a notification device.

27. The method of Claim 26, wherein the first end of the first conductor and the first end of the second conductor is coupled using a resistor.

28. The method of Claim 26, wherein the first conductor and the second conductor are housed in a solid conduit when run along a physical portion of the first section of the spanning structure and housed in a flexible conduit when run along a portion of the first section of the spanning structure where expansion or contraction is expected to occur.

29. The method of Claim 26, wherein the first conductor and the second conductor are each a copper wire.

30. The method of Claim 26 further comprising:

running a third conductor along a second section of the spanning structure, the third conductor suitable for carrying electric current;

running a fourth conductor along the second section of the spanning structure, the fourth conductor suitable for carrying electric current;

coupling a first end of the third conductor and a first end of the fourth conductor;

supplying an electric current to a distal end of the third conductor;

monitoring the distal end of the fourth conductor for an expected return electric current; and

responsive to not detecting the expected return electric current at the distal end of the fourth conductor, activating the notification device.

31. The method of Claim 26, wherein activating the notification device comprises displaying a message on a signboard.

32. The method of Claim 26, wherein activating the notification device comprises emitting an audible alarm.

33. The method of Claim 26, wherein activating the notification device comprises emitting an audible message.

34. The method of Claim 26, wherein activating the notification device comprises displaying at least one warning light.

35. The method of Claim 26, wherein activating the notification device comprises lowering a drop bar.

36. The method of Claim 26 further comprising, responsive to failing to detect the expected return electric current at the distal end of the second conductor, notifying a central operator of damage to the spanning device.

37. The method of Claim 36, wherein the central operator notifies emergency personnel of damage to the spanning device.

38. The method of Claim 36, wherein the central operator remotely activates the notification device.

39. The method of Claim 26, wherein the spanning structure is a bridge.

40. The method of Claim 26, wherein the spanning structure is an overpass.

41. A spanning structure damage detection and warning system comprising:

a means for providing a closed circuit along a section of a spanning structure;

a means for supplying an electric current on the closed circuit;

a means for detecting a break in the closed circuit; and

a means for activating a notification device upon detecting the break in the closed circuit.

42. The system of Claim 41 further comprising a means for notifying a central operator upon detecting the break in the closed circuit.